STAT

METHOD OF DIVIDING AREAS INTO NATURE-DETERMINED UNITS, USING MECKLENBURG, BRANDENBURG, SACHSENANHALT, THUERINGIA, AND SAXONY AS EXAMPLES

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The purpose of this article is to present the reader with a landform classification of a portion of the earth's surface based on causal factors subject to scientific identification. Further, we strove to select our complex of causal factors in such a manner as to cause the outline of the physical economy of the region, i.e., the circulation of matter completed therein, to become clear in outline form.

The execution of this undertaking involves the analysis of the soils of central Europe and cultural landscapes, which covers virtually 100% of the acreage of all regions. The economies of these cultural landscapes are governed by forces determined not only by nature, but, to a considerable degree, by man. I need only refer to the fact that waterway engineering, acceleration of deep erosion, and sinking of the water level to a shameful degree in places, have disturbed the water economy. We know, too, that sheet runoff is facilitated by land development and the presence of transportation lines, and, as a result, soil erosion increases in both its acute and chronic forms. Further, let us bear in mind the removal of a once extensive woodland cover by progressive putting the land to the plough, building settlements,

tree farming, etc. For example, even in the heights of the eastern Thuringian mountains, consisting of schist, where one would expect to encounter East Hercynian mixed mountain forests with many yews, mountain varieties of pine, etc., one finds instead that most of the land is covered with ploughland and long-established pasture land with artificial ponds. About 25% of the surface is covered with tree-farms consisting solely of spruce. In the middle valley of the Saale, one finds, as in so many other valley bottoms, not riverine forests, but cultivated pastures, in which meadows, alder and black poplar alternate as in parkland.

The anthropogenic components in the economy of the cultural landscapes interfere with efforts to obtain a grasp of [illegible] causes in their pure state, which would enable one to draw scientific conclusions pertinent to the regional classification it is desired to produce. The question arises as to what degree this component may be excluded from the study. Let us anticipate for a moment, and consider the geographical factor of vegetation. Vegetation, after all, is not only an important component of any given area, but also a significant index of the exchange of materials, the economy of the area. From this it would follow that in order to eliminate the anthropogenic component it would be desirable not to consider the vegetation of today, but that which botanists term "natural." And this is that "which develops as a result of a single more or less profound transformation due to human activity, excluding subsequent human influences." (This definition is that of F. Firbas, after Faber, Tuexen, and Diemont, for "natural woods," in Spaet- und nacheiszeitliche Waldgeschichte Mitteleuropas noerdlich der Alpen [History of the Forests of Central Europe During and Since the Last Ice Age],

Vol 1, 1949, Jena, page 37, ff). Other geographical factors to be taken into consideration are land forms, soil, atmosphere, waters, and, as far as it can be identified, the fauna. The combination of these factors in any given area produces a characteristic structure. Each factor is subject at least to qualitative, and, in some measure, to quantitative definition.

That this structural effect is evidenced in the visible appearance of an area, requires no further explanation here. To avoid misunderstanding, as the definition of a geographical landscape unit, we have taken a portion of the earth's surface formed, quantitatively and quantitatively, by specific geographical factors, and limited in area thereby. The individual unit is, we know, a natural landscape, when the only geographical factors that have formed it are inorganic and unconscious organic elements. It is a cultural landscape when conscious geographical factors are at work. Thus, if one wishes to divide an area into landscapes, it is desirable to attain clarity beforehand as to the type of geographical factors that have been at work. As it is our purpose to distinguish as clearly as possible each causal factor capable of scientific definition, and to draw scientifically-valid conclusions from the resultant classification, the vegetation that we shall consider is that placed there by nature. The result is a classification of areas into nature-conditioned units. I offer the following definition:

Nature-conditioned units are those geographical areas which would have come into being under present-day ecological relationships if all latter-day human influences were eliminated. They are, it follows, units which do not exist in reality, but can only be conceived of theoretically against the background of the cultural landscape of today.

As far as I know, this special conception was first advanced in a paper I presented at Section IX of the meeting of the German Academy of Agricultural Sciences in 1952. (Schultze, J. H.: "The Problem of Natural Landscapes, and the Mapping Thereof in the German Democratic Republic," in Sitzungsber. d. Dt. Akademie d. Landwirtschafswiss. z. Berlin [Proceedings of the German Academy of Agricultural Sciences, Berlin], Vol 1, No 8, 1952, Leipzig.) At that time I used the phrase "natural landscapes," to indicate the intimate relation between my concept and that of "natural vegetation" and "natural forests." However, I had myself been troubled, even before the extensive discussion of my paper revealed this to be true, by the possible confusion with the use of the same term by Gradmann and Spreitzer to mean both natural landscapes and cultural landscapes with features derived or determined by nature. Their usage pertains to landscapes actually in existence. As a result, my colleagues and I sought a new expression to describe this new concept. To emphasize the fact that the results studied are solely those produced by natural forces, we decided on the expression "nature-determined."

Our nature-determined unit is therefore, if I am correct, exactly that which Paffen designates as "natural" landscape (Paffen, K.: Die natuerliche Landschaft und ihre raeumliche Gliederung, [Natural Landscape and Area Classification in Accordance Therewith] -- a volume which came to my attention only after our studies had been completed, just as my paper of 1952 reached Herr Paffen after his was done). And this concept is very close to that which Schmithuesen terms "theoretical natural terrain."

Our problem consisted, therefore, of regionalising the territory covered by Mecklenburg, Brandenburg, Sachsen-Anhalt, Thuringia and Saxony into nature-conditioned landscape units. The working maps were therefore on the scale of 1:200,000. We also sought to arrive at a tentative grouping of these units into large regions, and did so.

Three considerations were kept uppermost, as far as method is concerned:

1. After a coordinated agreement was arrived at centrally on the lines of work to be pursued, actual performance of the work was decentralized. A coordinating committee set up by Section IX of the Academy of Agricultural Sciences was assisted by 5 regional commissions, for the one-time provinces of Mecklenburg, Brandenburg, Sachsen-Anhalt, Saxony, and Thuringia, respectively. Forty researchers in all were assigned to this work.

2. Each geographical factor was handled by one or more specialists in that particular discipline. The direction of each commission and the synthesis of the work was in the hands of geographers. The geographer of each team was also responsible for topography and landform classification.

3. The landscape classification was completed in 2½ years, by a 2-stage process. In the first, the regional commissions projected their tentative drafts. Boundary areas were coordinated by the geographers of the over-all committee (Schultze and Bauer), with the aid of discussions with the respective regional committees. The tentative general draft then went to the Coordinating Committee,

which was expanded, for purposes of this phase of its work, to include the geographers at the head of each regional commission. Obviously, suggestions for improvement came out of this procedure. The processing of these suggestions served as a screening procedure, and resulted in the work going into a second stage, which followed the same procedure as the first.

The results are appended in our map, which we shall describe without going into detail. The map shows 28 large regions or portions thereof (as the boundaries of the area under study correspond to those of large landforms only at the Baltic coast and at the Werra River at the northwestern border of the Thuringian Forest). There are also 176 landscape units, the average area of which is 614 km^2. It is quite interesting to find that the units of natural area in the Meynen and Schmithuesen [see Note following] classification average 825 km^2, and thus are of the same order of magnitude as ours while the cultural landscapes of modern Greece average, by my classification, 550 km^2. ([Note:] Naturraeumliche Gliederung Deutschlands mit Hoehenschichten [Breakdown of Germany by Natural Areas, with Contour Lines] (1:1,000,000), published by the West German Office for Regional Geography and the Central Board for the Regional Geography of Germany, 1954, Remagen.) For each landscape unit there is a sheet of comment, with quantitative and qualitative data on the geographical factors and, in most cases, with added information on current land use and erosion. The regional commissions are responsible for the boundaries and comments. The maps and comments have been issued as a book (Schultze, Joachim H, Die Naturbedingten Landschaften der Deutschen Demokratischen Republik [The Nature-Conditioned Landscapes of the German Democratic Republic),

Suppl. No 257 to Petermanns Geogr. Mittn, 1955, Gotha), with a detailed introduction, in which I set forth the bases of the treatment and discuss in greater detail how the results are to be evaluated and understood. This essay provides a brief review of aspects of the work of our Society. The book states repeatedly, and it is proper for me to reiterate this here, that definitive results have not yet been attained. Nor does the present state of our research in the associated specialties -- hydrology, soil science, and phenology -- permit anything to be propounded in these fields.

We knew in advance that our results might be similar to those obtained by classification in terms of natural areas. Of course, the concept of natural area differs from that of nature-conditioned landscape in that the latter includes the natural vegetation. Schmithuesen states directly that classification by natural area is abiotic in the factors it encompasses. Such areas are, of course, not landscapes. There is, however, a point of connection with the concept of "theoretical natural terrain" in that the regions defined abiotically are considered in terms of their potentials for vegetation. It is natural vegetation that is considered. This is an index of special significance. (Schmithuesen, J., "Fundamentals of Research and Mapping of Germany on the Basis of Classification by Natural Areas," Ber, z. dt. Landeskde. Vol 6, pages 9 and 14, 1949; Otremba, E., "Fundamentals of the Classification of Germany into Natural Areas," Erdkunde [Geography], 1948, page 157). In practice, one emerges with a close approximation to theoretical natural terrain, and from this, to nature-determined landscape.

The..., despite the difference in the methods used, there is ... of comparison of the classifications attained on the basis of natural area and nature-determined landscape. Such a comparison reveals many differences both in the size and the boundaries of the units. Schmithüsen and I had an extended discussion of this in April of this year. He is inclined to ascribe the differences to the more detailed treatment involved in arriving at the nature-conditioned landscapes. I believe that to be correct, and that they are to be ascribed to the assistance of specialists in the various fields as well as to the distribution of the work to the regional commissions.

There is less logic to a comparison between our classification in terms of nature-conditioned landscapes, and the physical geographic classification published by J. F. Gellert in the Climatological Atlas of the German Democratic Republic (1953, Berlin; also Gellert, "Notes on the One-Millionth Scale Physical Geographic Regionalization of the German Democratic Republic," Petermanns Geogr. Mittn. [Petermann's Papers on Geography], pages 10-13, 1954). This lesser degree of comparability is not essentially due to the difference in the number and size of the units arrived at: he arrives at 15 physical geographic regions or portions thereof, against our 28 nature-determined large landscapes, and 68 regional units covering an average of 1590 km^2 versus 176 nature-determined landscape units, averaging 614 km^2. I find the difficulty to lie more in the differing theoretical foundations. The difference is to be found both in abiotic and biological geographical factors. However, his annotations state at one point that vegetation and the anthropogenic changes in the geography thereof are taken as bases of the classification, while at another

point we read that "the historically-evolved and regionally-differentiated effects of the development of human society as such" are excluded. The reader is faced with a contradiction, but gains the impression that, by and large, the physical geographic regionalization takes present-day vegetation as a basis for its reasoning. Furthermore, the results are termed physical geographic units, and it is stated specifically that they do not constitute landscapes of any type whatever. That these units are something other than naturally-evolved landscapes is evident from the different orders of magnitude referred to above, and particularly in the results of the work of our regional commission for Brandenburg, of which Gellert was the chief. Its maps of nature-conditioned landscapes show boundaries distinctly different than those for the physical geographical regions.

Let us now consider the individual geographical factors and discuss the manner in which their spatial coordination was effected, cartographically. We based ourselves on data gathered by observation, as far as the geographical factors are concerned, and gave second place to calculations.

Direct observation is the best method of obtaining data on the first factor we shall deal with, topography. In describing relief we are concerned with angles of slope. Typical angles were measured in the field and not only on the map. Old textbooks of topography differ widely in the slopes they characterize as flat, steep, etc. We designate as flat, a slope of 0 to 5 degrees, while an average slope is from 5 to 20 degrees, and a steep slope is one over 20 degrees. In addition, the topography is described by the landform data. Here we used the standard geomorphological symbols, often based on genetic considerations.

As far as soil is concerned, the ideal situation would be one in which we could show the "natural soil" under the "natural vegetation." This is impossible, however, and we would be satisfied with over-all mapping of today's soil by characteristics, class, and type to the required scale. This, we know, has not been done. In our notes, the class of soil is designated by physical chemical and static properties in the manner generally familiar. Data for this type of description of soil types is available virtually everywhere. The situation with regard to morphological-and-genetic, dynamic designation of soil types, is not as good. Pedologists differ somewhat in their views on this subject. The Stremme-Ostendorff trend views soil types in terms of systems of i[illegible] at work in landscapes, while the Laatsch-Kubiena school gives greater emphasis to processes of internal development and stratification. The only map now available and suited to the purpose at hand is that of Stremme, at 1:500,000. It is the authority used for our explanations.

Soil properties are of interest as the standard for determining the capability of the landscape to yield vegetable matter. A significant portion of the landscape economy is governed thereby. But where is one to obtain the necessary data? When our work was done, Rasch's map had not yet appeared. But his map alone is not sufficient, as it does not embrace cultivated woodland. For arable, we based ourselves upon the findings of the National Conservation Service, taking into consideration, of course, that this was based purely on yields, a factor that is of limited significance in the economy of a landscape unit. For meadow and pasture, the grassland-appraisal figures are of greater value to us, as they offer raw yield with consideration of climate and waters.

In the field of hydrology, we are interested in water balance and groundwater level. It is not easy to obtain a quantitative measurement of water economy for a landscape unit. Samplings show marked differences between the extent of a landscape unit, on the one hand, and the drainage basin determining river levels therein, on the other. In only a few instances do the two coincide. In the second stage of the work, the Institute for Water Resources calculated the ratio of flow-off and precipitation over a long term of years. The figures adduced are not definitive, by any means. The mean flow-off is often lacking. The saturation ratio, precipitation over saturation, in which saturation is given in millimeters of mercury, has been omitted completely, although the hydrologists have offered this data. The figure is uncertain, however, as, except for precipitation, the field data represents findings at but a small number of stations.

As far as groundwater is concerned, it would be desirable to have progress lines for a long term of years, as it is subject to significant fluctuation not only during a single year, but over periods of several years. But the available data is very incomplete. While measurements have been taken at 8,000 points in Sachsen-Anhalt and northwest Saxony, the other areas have test holes but here and there. As a result it has become possible to give only a general hydrogeological description.

With climate, as with water economy, we encounter a discrepancy between the points for which records are kept and the extent of the landscape units. This discrepancy is smaller than in the field of hydrology, but nonetheless distinct. Here, too, we can

only offer a general characterization. We have no recourse but to employ Hoffmeister's climate regions or Pelzl's climate areas, although both units are so large as to offer an inadequate characterization of the individual landscape units. We arrived at our general climate characteristics by 6 measured mean figures for temperature and precipitation.

Certain phenological data supplement this work. The relationships between phenological facts and landscape structures are often bewildering. Unfortunately, most of the data dates from before 1945. However, series from 1947 to 1951 are also available at present. Five dates have been given us, of which 3 are valid indices of the temperature curve: the average blossoming date of the snowdrop, the lilac, and winter rye. Two other dates - the average date of start of field work and of the winter rye harvest - are valid only as reflections of the real phenology in the form of rules of biological practice and as phenomena in the field of an occupation and of political economy.

The geographical factor represented by natural vegetation is capable of direct observation only on rare occasion. Therefore, description of this factor represents a step from observation toward hypothesis. Description of natural forest vegetation societies is of significance. It is based on practical knowledge as well as on comparison of the forest societies of today with those of the late interglacial epoch. In extensive cultivated flatlands, such as the Magdeburger Boerde, there is no guarantee that the description is valid for the landscape as a whole, as the residual forests here occupy but a small and declining acreage.

The description of natural vegetation for the 176 individual landscape units was checked by a special committee during the second stage of the work, for the purpose of unifying the nomenclature.

Having described the treatment of the geographical factors, let us approach the problem of how best to depict them in combination within a given space, on the map. This is at the same time the problem of the space within which the structure caused by their effects exists and, therefore, that of the boundaries of the landscape under study. The coordinated agreement under which the work was conducted took as desirable a procedure which the regional commission for Thuringia applied as follows. First, a number of landscape core areas were set up, as hypothetical, i.e., the commission took it as probable that, working out from given nuclei, it would find nature-determined landscape units. One such was the high Thuringian Forest, in its purest form around the Schmuecke and the Inselsberg; another the naturally-evolved landscape of the Keuper Bowl with its nucleus around Lake Gebe. The geographical factors of nuclei such as these were then given written description by the geographer, the soil scientist, the hydrologist, the climatologist, the botanist or forest specialist, in the manner we have set forth. In addition, each factor was entered on a 1:200,000 map, with indication of the spatial limits within which it took the specific form encountered. The outcome was as many maps of Thuringia as there were geographical factors. All these maps of individual factors were plotted outward from the assumed landscape core area. The combined boundaries were then obtained by superimposition of the maps for topography, soil, etc., onto a single

sheet, which we dubbed the "earthworm map." What did it reveal? For one thing, the boundary belt of the nature-determined landscape came to light. This belt evidenced itself most distinctly at points where the boundaries of the individual maps ran approximately parallel and close together. This was the case with the north and south slopes of the Kyffhaeuser and the Thuringian Forest, that is, at high and steep escarpments, where different landscapes meet at clear lines of delineation. The boundaries of the individual factor maps showed less clear coincidence at the east bank of the Rhoen, the west slope of the Hainich, and the transition from the Harz to the Goldene Aue. The factor boundaries showed their greatest divergence at the inner border of the Thuringian Basin, where it fades into the higher boundary plain and where surface forms, soil, water economy, and the rest change in specific appearance gradually, and not suddenly.

The "earthworm map" was too unclear, however. A simplification was necessary, if its message were to be readily grasped. This required boundary lines to be derived from the boundary belts by a process of abstraction. Two methods were available, one the many-sided approach of Granoe, and the other a method of working with one factor at a time, as per Haull. I had already made use of the latter method in other studies. It had proved satisfactory, and yielded good results. In this present work we therefore also followed this factor-by-factor method. It deserves that designation in the sense that the individual factor boundaries are not treated as being of equal value everywhere. Thus, topography, say, or vegetation, are not taken as the single most significant factor, but rather the factor that is dominant at each particular locality is used to set the landscape boundary at that spot.

Determination of which factor is dominant was the responsibility of the geographer synthesizing the entire work. It is for this reason that it was desirable for the commissions to work with persons having special knowledge of their regions. The geographer would question the specialists from time to time with regard to the possibility of discarding one or another factor boundary at a given point. For example, the "earthworm map" showed the water economy boundary in the Thuringian Basin to deviate considerably from those of the other factors. As it turned out, the hydrological line had been drawn rather more freely between points of measurement very widely spaced. Thus, its significance was correspondingly less important.

The superimposed map of geographical factors, the "earthworm map," also served another, supplementary, purpose. This map was plotted outward from a hypothetical landscape core area, or, in other words, was based on intuition. Intuition cannot be dispensed with in any science, and has important merits. But it requires proof of its validity. The superimposed map of geographic factors offered such a test. Thus, if the boundary lines for particular factors run in a direction other than that presupposed by the choice of core area, this indicates that the letter was erroneously chosen. We encountered just such a situation. The regional commission for Thuringia was unanimous in believing that nature-determined landscapes would probably exist at a point where a map of cultural landscapes showed 3 valleys bordering a mountain range (I have not published this map). These 3 cultural landscapes exist on the north face of the Thuringian Forest and the Slate Mountains one embracing Sondra-Waltershausen-Friedrichroda-Nauendorf, another

covering the Treefenreda-Ilmenau-Gehren area, and a third in the Orla depression. The map of nature-determined landscapes show only the "Waltershaeuser foothills" and the "Orla depression," and both these with boundaries somewhat different from the cultural landscapes we have described. At Ilmenau there is no nature-determined landscape, because the physical geographical factors offered no justification for the delineation of a special unit there.

A further difficulty is presented in areas where the earth's surface has been most changed by cultural landscapes around large cities such as Berlin, Leipzig, and Dresden, and in the areas of extended large scale brown-coal stripmining: the Geisel Valley, Borna and Niederlausitz districts. In these areas, the boundaries are drawn by interpolation based on surrounding territories less influenced by the factors that have been at work there. In areas such as these where cultural landscapes have been developed to a high potential, knowledge of the nature-determined landscapes must remain uncertain. It is also difficult to give proper consideration, in our theory, for the distant effects of districts such as these. It is our belief, however, that these conditions play no determinant role as far as the total area interesting us is concerned.

It might also be desirable to show the boundaries of the nature-determined landscape units on the over-all map in terms of the particular factor which is determinant in a given segment. We have not yet done this, but have brought our work to a tentative conclusion. The task referred to may be undertaken later, and may also serve other types of classification.

In one respect, however, we did carry out work further. We grouped the 176 landscape units into 28 large regions or portions thereof. Each of the large regions consists of a number of landscape units. It occupies a contiguous territory, and constitutes a logical unit, just as does the individual landscape. The delineation of the large region is based on exactly the same geographical factors as the smaller units, the only difference being that greater variation was allowed in setting the boundaries for each factor. The number of landscape units constituting a large region is of no significance, as it was determined by the facts in the case. We have not limited this by use of a decimal system of numbering, as was the case with the regionalization by natural area.

Characteristic large regions in our regionalization are, for example:

01: the Mecklenburg coastal fringe and Usedom;

04: the Mecklenburg-Brandenburg lake-studded plain;

08: the lowland valley of the Elbe, which extends downward from Meissen, and takes on particular width in Brandenburg, as a major landscape region;

16: the Flaeming;

22: the Harz;

23/24: the Thuringian Basin with its adjacent flatlands; and

26: the low mountain belt in Saxony and Thuringia.

Summary

1. A new concept is advanced, that of the nature-determined landscape. That which distinguishes it is the use of natural vegetation as geographical factor. Nature-determined landscapes are

hypothetical (imaginary) landscape units, constituting a special type of natural landscape. Our concept is identical with that of Paffen's natural landscape, developed independently of us, and is very similar to Schmithuesen's "theoretical natural terrain."

2. The region under study has been broken down into nature-conditioned landscapes. Our work has been published as a supplement to Petermann's Mitteilungen. It presents a parallel to the regionalization based on natural areas, as far as results are concerned, but not in the manner of arriving at them. The units produced by that method average 825 km^2 in area, while our nature-conditioned landscapes average 614 km^2.

3. Our method of work is characterized by an initial area-wide understanding of the problem, and decentralized research. Forty scientists from various disciplines were engaged in elaborating the individual geographical factors. Geographers had the responsibility of leading each group and synthesizing the results. The original maps were on the scale of 1:200,000, while the published maps are in 1:1,000,000.

EPILOGUE

E. Meynen

In the discussion of professor Schultze's detailed paper, "Nature-Determined Landscapes of Central Germany," presented at the meeting of the geographers of Germany in Hamburg (August 1955), it became clear that the same problems are being dealt with on each side of the line dividing Germany, but that, due to lack of contact, different methods and concepts are being employed in the

effort to solve them. We should like to express our gratitude to professor Schultze for having responded to our request to inform us of the work he has conducted. May the undersigned, as one of the founders of the regionalization by natural area, and as editor of the Handbuch der naturraeumlichen Gliederung Deutschlands [Handbook of the regionalization of Germany by Natural Areas], be permitted to supplement professor Schultze's paper by a few remarks on the work carried out in regionalization by natural areas.

The work conducted in "regionalization by natural area" and "regionalization by nature-determined units" arrive at similar results, as emphasized by both parties in the Hamburg discussion, although their methods of work are different. The difference in concept would appear to be more in the approach to clarification of understanding along 2 different paths, and therefore does not seem to present an inherent contradiction. We regard these differences as differences in formulation of concept, something that we have in the nature of things encountered repeatedly in our work, particularly where a matter of fundamental interest to our discipline is concerned. Such differences are the yeast in the dough.

In our opinion, the real difference lies in the fact that the procedure stemming from the work of Albrecht Penck (1), Gustav Krauss (2), Ernst Brueckner and Martin Kornrumpf (3), Wilhelm Mueller-Wille (4), and, in particular, Josef Schmithuesen (5), has triumphed over the old boundary-belt procedure, so that the units of natural area are delineated by accurate field mapping of natural landscape units, and that they are then identified as

what are called landscape structures (i.e., structural entities consisting of the smallest units of natural area, natural or developed localities, have been charted).

The following sheets are already available: Wreschen, by H. Mueller-Miny, 1943; Stuttgart, by F. Huttenlocher, 1949; Karlsruhe, by J. Schmithuesen, 1952; and Ulm, by H. Graul, 1952. Completed and ready for publication are the following: Arolsen, Augsburg, Brunswick, Duesseldorf and Erkelenz, Goettingen, Cologne and Aachen, Lingen and Cloppenburg, Minden, Nienburg, Oldenburg, Sigmaringen, Stendal, Straubing.

The completion of the progressive and systematic survey of the natural-area regionalisation of Germany was placed in question by history, in 1945. As a result, independent of the 1:200,000 mapping initiated by professor W. Credner, a tentative first draft in 1:500,000, later improved to 1:300,000, was developed on the initiative of the Central Office for the Regional Geography of Germany and the West German Regional Geography Department (the former Regional Geography Bureau), with an eye to the possibility of a census in 1950. It was based on the available 1:200,000 regionalization then available and on individual sketch maps made by about 50 geographers for areas with which they were particularly familiar. As a result, the natural area regionalisation of Germany that is finally in publication is the product of collective work, and rests on the extensive range of knowledge of a large number of collaborators.

It was clear to us from the outset that this sketch map of 1949, despite the modifications introduced by frequent private and public scientific discussions, would have to undergo rectification of boundaries as the 1:200,000 project advanced. Nor may one overlook the fact that the one-millionth map is capable, for reasons of size, of depicting only the major units, while the 1:200,000 scale is able to present all units capable of cartographic depiction and found by direct observation.

The natural-area regionalization set forth in the 1949 one-millionth map of 1949, was dependent, for East Germany, on the proposals of W. Behrmann, H. Lautensach, H. Lehmann, R. Reinhard, J. H. Schultze, W. Witt and others. H. Bobek, A. Krenzlin, H. Lemke, and others have, in many discussions of the basic procedures of structure analysis, advanced the matter to the point at which finalization of a unified picture is before us. However, if this work still required perfection in detail, and we are convinced that this is truly the case, we believe it is accurate to offer the same judgment of the sketch map published by professor Schultze. The individual components of the map presented by professor Schultze are, quite clearly, dependent upon the state of the work completed, or the scientific coordination attained within each particular regional territory of research -- a fact that is quite understandable -- and differ accordingly. Our experience with the sketch of the millionth map was similar. We may say that the more carefully the boundary zone method has been pursued, the greater the accuracy of the boundaries drawn. It is our opinion that, as the bases of our knowledge are perfected in the course of regional mapping of land structures, both groups,

working by their respective methods, will arrive at the same boundary lines. In this sense we welcome the agreement arrived at the Hamburg meeting of geographers to work out a handbook of natural-area regionalisation of Germany without regard for the unfortunate border between us.

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FIGURE CAPTIONS

Figure [opposite page 72, original].

The major nature-determined landscape units of Mecklenburg, Brandenburg, Sachsen-Anhalt, Thuringia, and Saxony. Drawn by J. H. Schultze; printed by West German Regional Geography Office, Remagen.

Ost-See = Baltic Sea

Boundaries of large regions

Numbers of large regions

01 Mecklenburg coast and Usedom

02 Lowlands of northeast Mecklenburg

03 Further reaches of Mecklenburg lake-studded plain

04 Mecklenburg-Brandenburg lake-studded plain

05 Southwest approaches to Mecklenburg lake-studded plain

06 Northwest Brandenburg mixed plain and hill country

07 North Brandenburg sandy plains and loam flats

08 Lowland of the Elbe Valley

09 The Marshes

10 East Brandenburg plains

11 The Oder-Neisse Valley

12 Altmark

13 Weser-Aller weathered hills

14 Plains and lowlands of central Brandenburg

15 East Brandenburg heath and lake country

16 Flaeming

17 Northeast forelands of the Harz

18 Plains of Sachsen-Anhalt

19 Heaths of north Saxony

20 Lausitz Basin and heaths

21 The Spree Forest

22 The Harz

23/24 Thuringian Basin and surrounding lowlands

25/26 Saxony hill country

27 West Thuringian fault and overthrust zone

28 Saxony-Thuringian low mountain belt

29 Rhoen

30 Southern approaches to the Thuringian Forest